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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,521	06/03/2005	Uwe Plocoennik	HM-647PCT	3586

40570 7590 06/01/2010

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ART UNIT	PAPER NUMBER
2123	

MAIL DATE	DELIVERY MODE
06/01/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/537,521
Filing Date: June 03, 2005
Appellant(s): PLOCOENNIK ET AL.

Klaus P. Stoffel
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11 March 2010 appealing from the Office action mailed 2 June 2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-9 are pending and stand rejected. Claims 1-5 and 9 stand rejected under 35 U.S.C. §103(a) over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of US Patent No. 5,357,443 to Watanabe et al. Claims 6-8 stand rejected under U.S.C. §103(a) over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of US Patent No. 5,357,443 to Watanabe et al., and further in view of US Patent No. 5,804,727 to Lu et al.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2003/0089431	GRAMCKOW ET AL.	5-2003
5,357,443	WATANABE ET AL.	10-1944
5,804,727	LU ET AL.	9-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

B. Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of US Patent No. 5,357,443 to Watanbe et al.

Gramckow et al. (hereinafter "Gramckow") teach of a method and device for controlling and/or regulating a metal strip as it is being rolled in a rolling machine.

Claim 1 cites a method for adjusting microstructural properties of a metal produced in the process control or process regulation of an installation for shaping, cooling, and/or heat treatment of the metal, wherein the installation is equipped with actuators for setting specific operating parameters, and the corresponding method process is based on a method model, with which suitable process control and/or process regulation variables for acting on the actuators are determined online with computer assistance after relevant measured values have been detected, comprising the steps of: detecting at least one current actual microstructural characteristic value that provides information about the metal microstructure online at an end of or during a

corresponding method process as a relevant measured value; and depending on the relevant value and using a microstructure model and the method model on which the process is based, exerting an effect on the actuators of the method process in order to adjust desired microstructural properties of the metal, such that the following can be nondestructively detected as the actual microstructural characteristic value:

• a microstructural grain size value, and/or

• a microstructural transformation time or the microstructural transformation time interval,

• the microstructural transformation.

Gramckow teaches of controlling the process based upon sensed and/or detected conditions during the processing of the metal strip, then comparing the processing to a model, so as to change the process parameters to achieve the desired properties of the metal during the processing itself as shown in Fig. 3 and explained beginning in paragraph [0034]. However, Gramckow does not specifically state the microstructural characteristic values and models as per the limitations of the instant claim. Watanbe teaches this beginning in column 3 in relation to Fig. 1, the treatment or processing of steel or the metal is taught at line 11 as being either heat treatment, rolling, and/or cooling. The method models used to estimate the properties is listed beginning at line 47. The step of detecting an actual microsturctural characteristic value is taught as being computed by estimating the state of the metallic structure as per col. 3, beginning at line 64 through col. 4, line 4. The various characteristics of the structure are defined in line 11 of column 4. The last step of exerting an effect on the actuators is

taught in column 5 lines 7-16. The process of computing the results of a model from a previous step or structure is carried through. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the microstructure models and characteristic values as taught by Watanbe with the real-time controlling/regulating process of Gramckow so as to gain the advantage of cooling conditions which correspond better to the actual conditions during processing itself as indicated by Gramckow in paragraph [0010].

Claim 2 specifies the microstructural grain size as the microstructural grain size value for the steel group of C-Mn steel. Watanbe teaches such in col. 4: ll. 24-25, and col. 5: ll. 22-36.

Claim 3 includes detecting the site or the time interval of the beginning and end of the microstructural transformation with several detection units. Watanbe teaches the step of detecting with several detection units by showing the construction and computation of the model in a variety of units. Examples of the model being processed through different units in each of the 1 steps is taught beginning at line 64 of column 3.

Claim 4 is directed to the process of carrying out the online microstructural control in a cooling line of a wire mill with a water-cooled segment of the cooling line and an air-cooled segment of the cooling line, detecting wherein a current microstructural grain size value of the metal after passage through the water-cooled

segment of the cooling line by means of an ultrasonic measuring instrument, and detecting wherein the temperature of a microstructural transformation and a course of the microstructural transformation, with respect to time with temperature measuring devices that can be moved in the direction of conveyance of the metal and/or variably oriented. Watanbe teaches this aspect of the instant invention beginning at line 25 in column 10.

Claim 5 states including comparing an actual value and a set value, and wherein if the comparison of the actual value and the set value reveals a difference that exceeds a certain value, carrying out an online adaptation of the method model and/or the microstructure model as a function of the detected value that provides information about the microstructure. This aspect of the claimed invention is taught at lines 37-43 in column 8.

Claim 9 includes the detecting of the microstructural transformation temperature with at least one temperature detection unit, which is movable longitudinally with respect to the direction of metal conveyance and is positioned as a function of the site of the microstructural transformation that is expected based on the microstructure model. Watanbe teaches this at column 6, lines 34-68.

C. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2003/0089431 A1 to Gramckow et al. in view of

US Patent No. 5,357,443 to Watanbe et al. as applied to claim 1 above, and further in view of in view of US Patent No. 5,804,727 to Lu et al.

As with claims 6-8, the use of specific type of measuring instruments is claimed. Claim 6 specifies the detecting step to be done with an ultrasonic or x-ray measuring device. Claim 7 defines the detecting step to be done by detecting linear expansion of the metallic lattice that is associated with the transformation using the measuring instruments that contact the metal. And claim 8 further defines the measuring instruments as being rolling force measuring devices or measuring rollers. Although Watanbe teaches the use of rollers for the rolling process and measuring devices for measuring metallic properties, the prior art fails to specifically teach the use of the devices as per claims 6-8. For this reason, the prior art of Lu et al. (hereinafter "Lu") is relied upon. Lu teaches of a method for determining and evaluating physical characteristics of a material, especially from manufacturing processes as rolling, etc. In operation, an ultrasonic wave is created for use and measured to determine the physical characteristics of the texture, grain size, and crystal lattice structure, as stated in the abstract and in col. 4: ll. 16 et seq. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the measuring devices as used by Lu in the method of Gramckow/Watanbe so as to provide a more accurate high resolution method for determination and evaluation of physical characteristics without the use of destructive methods.

For the reasons stated above, the prior arts of record teach or fairly suggest the limitations of the instant invention, thereby rendering the claims unpatentable.

(10) Response to Argument

It is to be noted that the examiner, throughout prosecution, has given the claims a reasonable interpretation when read in light of the specification.

Appellant argues that the combination of references relied upon does not teach the presently claimed invention. Specifically, the reference of Watanabe et al. (USPN 5,357,443) as relied on "does not teach detecting an actual micro-structural characteristic value, but instead only teaches 'to automatically estimate the state of the metallic structure'" and continues by stating that "there is no teaching of a method that measures actual micro-structural characteristic values". Examiner disagrees as it is clearly stated in the reference of prior art to Watanabe, beginning at line 64 in column 3 through line 4 of column 4, as "the calculation for the metallurgical phenomena in the step is successively performed so as to complete a computation for the state of the metallic structure. In order for a model to be accessed according to the steps through which the steel product passes, and a computation is completed to automatically estimate the state of the metallic structure and the properties of the final steel product ..."; Examiner interprets the step of "automatically estimat[ing] the state of the metallic structure" as including the measuring of a micro-structural characteristic. This interpretation is deemed appropriate since the step of "estimating" inherently requires the presence or need of a value. When making calculations, i.e. estimations, data values (including characteristic values) are gathered and used in the computational process to arrive at a result. This is a step well known to skilled artisans in the area of

estimating and calculating of numerous data. As Watanabe continues to explain, the construction and computation of the models progresses based upon the estimations made. Moreover, the detecting of values, namely characteristic values, is essentially taught in column 5 at lines 7-16, Watanabe teaches in column 5 that the "furnace atmosphere temperature and the period of time in the furnace or the temperature rise rate and the holding temperature/time can be input as heating conditions. It is possible to input actual conditions as well as virtual heating conditions." The capability of "inputting" values necessitates the detection of such values/characteristics for use as data. It is to be noted that Appellant's invention lists as characteristic values grain size value and/or transformation time or temperature in independent claim 1. The input values measured and used by Watanabe include time and temperature. Additionally, Watanabe teaches the measuring of temperature and time and depicts graphs of the measured values in Figures 8-10. In column 9, lines 37 et seq., the measured values are explained as being similar to that of the calculated ones. It is clear that Watanabe detects characteristic values, especially since a value needs to be detected or identified in order for measurements to be made/taken. Additional examples of detecting values with regard to temperature/time can be found in column 4 at line 36 as "thermal history" is calculated and at line 43 as "calculations are given at elapsed time intervals".

On page 10 of the Brief, Appellant states that the reference of prior art at column 10, lines 42-44, states "that it is an objective to avoid testing and measuring in a finished product". This statement has been taken out of context by the Appellant, the prior art

states such as a means of pointing out effects of the patented invention as per testing and measuring a finished, not with regard to the computational methodology.

Lastly, the Appellant has argued the rejection made to claims 6-8; as these claims stand and fall with independent claim 1. Appellant states that the support of the reference of prior art to Lu et al. (used to reject claims 6-8) does not add to the teachings of Gramckow et al. and/or Watanabe et al. to suggest the presently claimed invention. In response, Examiner disagrees and refers to the aforementioned point of discussion in support of the Office's position.

It is for the reasons as stated above and maintained throughout prosecution that has rendered the pending claims 1-9 unpatentable over the prior arts of record; thus, rejections made are deemed proper and should be affirmed/sustained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Sheela Rao/
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Examiner, Art Unit 2123

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